

The Claims

1. (Previously presented) A method of processing a database service query, comprising:

receiving a service query, the service query comprising a filter that comprises one or more filter items;

expanding the filter of the service query;

applying a condition test to each filter item of the filter, the condition test comprising:

determining if the filter item comprises a NOT connective; and

determining if the filter item comprises one of a type only filter item or a type and value filter item; and

if it is determined that the filter item comprises a NOT connective and a type only filter item, applying a logical methodology to evaluate the NOT connective, the logical methodology comprising expanding an expression of the filter item so that the filter item does not comprise the NOT connective.

2. (Canceled)

3. (Canceled)

4. (Previously presented) The method as claimed in claim 1, wherein the logical methodology comprises a subtraction method.

5. (Previously presented) The method as claimed in claim 1, further comprising, if it is determined that the filter item comprises a NOT connective and a type and value filter item, pushing the NOT connective associated with the type and value filter item inside the filter item, resulting in changing an operator inside the filter item.

6. (Previously presented) The method as claimed in claim 1, wherein the condition test further comprises determining if each filter item can be pre-evaluated to true.

7. (Previously presented) The method as claimed in claim 1, wherein the condition test further comprises determining if each filter item can be pre-evaluated to false, such that an expanded term of the expanded filter can be ignored.

8. (Previously presented) The method as claimed in claim 1, wherein expanding the filter comprises expanding the filter to a minimum set of terms.

9. (Previously presented) A directory services arrangement comprising:
a plurality of tables, each table comprising a plurality of rows and columns, operable to store arbitrary data in a search service, at least one of the tables comprising information for resolving filters that comprise at least one filter item;
means for expanding each filter into an expanded term;
condition test means operable to determine:
whether each filter item comprises a NOT connective; and
whether each filter item comprises one of a type only filter item or a type and value filter item; and
means for applying, if it is determined that the filter item comprises a NOT connective and a type only filter item, a logical methodology to evaluate the NOT connective, the logical methodology comprising expanding an expression of the filter item so that the filter item does not comprise the NOT connective.

10. (Canceled)

11. (Canceled)

12. (Previously presented) The directory services arrangement as claimed in claim 9, wherein the logical methodology comprises a subtraction method.

13. (Previously presented) The directory services arrangement as claimed in claim 9, wherein, if it is determined that the filter item comprises a NOT connective and a type and value filter item, a NOT connective associated with a type and value filter item is pushed inside the filter item resulting in changing an operator inside the filter item.

14. (Previously presented) The directory services arrangement as claimed in claim 9, wherein the condition test means is further operable to determine if each filter item can be pre-evaluated to be true.

15. (Previously presented) The directory services arrangement as claimed in claim 9, wherein the condition test means is further operable to determine if each filter item can be pre-evaluated to be false, such that an expanded term of the expanded filter can be ignored.

16. (Previously presented) The directory services arrangement as claimed in claim 9, wherein the condition test means is further operable to determine if each filter can be pre-evaluated to be true, but is inverted by a NOT connective, such that the expanded term can be ignored.

17. (Previously presented) A method of processing a database service query, comprising:

receiving a service query;

applying a filter to the service query resulting in zero or more filter items;

applying, if one or more filter items results, a condition test to each filter item to determine whether the filter item comprises one of a type only filter item or a type and value filter item; and

if it is determined that the filter item comprises a NOT connective and a type only filter item, applying a logical methodology to evaluate the NOT connective, the logical methodology comprising expanding an expression of the filter item so that the filter item does not comprise the NOT connective.

18. (Canceled)

19. (Canceled)

20. (Previously presented) The method as claimed in claim 17, wherein the logical methodology comprises a subtraction method.

21. (Previously presented) The method as claimed in claim 20, wherein the subtraction method comprises using an ANSI SQL “except” clause.

22. (Previously presented) The method as claimed in claim 20, wherein the subtraction method comprises transforming each filter item to a form that contains fewer or no NOT connectives.

23. (Canceled)

24. (Previously presented) The method as claimed in claim 17, comprising adding, if the filter item is a type and value filter item, SQL representing the filter item to an expression to be evaluated, which may involve at least one table join.

25. (Previously presented) The method as claimed in claim 17, comprising, if the filter item is an inverse of the type and value filter item, pushing the NOT connective inside the filter item.

26. (Original) The method as claimed in claim 25, further comprising applying the pushed NOT connective to an operator.

27. (Original) The method as claimed in claim 26, wherein the step of applying the pushed NOT is effected by inverting the operator.

28. (Previously presented) A directory services arrangement comprising:
a plurality of tables, each table comprising a plurality of rows and columns, operable
to store arbitrary data, at least one of the tables comprising information for resolving filters
that comprise at least one filter item in a search service; and
a condition tester operable to determine:
whether each filter item comprises a NOT connective; and
whether each filter item comprises a type only filter item or a type and value
filter item;
the directory services arrangement operable to, if it is determined that the filter item
comprises a NOT connective and a type only filter item, apply a logical methodology to
evaluate the NOT connective, the logical methodology comprising expanding an expression
of the filter item so that the filter item does not comprise the NOT connective.

29. (Canceled)

30. (Canceled)

31. (Previously presented) The directory services arrangement as claimed in claim
28, wherein the logical methodology comprises a subtraction method.

32. (Previously presented) The directory services arrangement as claimed in claim
28, wherein, if it is determined that the filter item comprises a NOT connective and a type
and value filter item, a NOT connective associated with a type and value filter item is pushed
inside the filter item resulting in changing an operator inside the filter item.

33. (Previously presented) The directory services arrangement as claimed in claim
28, wherein the condition tester is further operable to determine if each filter item can be pre-
evaluated to be true.

34. (Previously presented) The directory services arrangement as claimed in claim 28, wherein the condition tester is further operable to determine if each filter item can be pre-evaluated to be false, such that an expanded term of the expanded filter can be ignored.

35. (Previously presented) The directory services arrangement as claimed in claim 28, wherein the condition tester is further operable to determine if each filter can be pre-evaluated to be true, but is inverted by a NOT connective, such that the expanded term can be ignored.

36. (Previously presented) Software for processing a database service query, the software being embodied in a computer-readable and when executed operable to:

receive a service query, the service query comprising a filter comprising one or more filter items;

expand the filter;

apply a condition test to each filter item of the filter, the condition test comprising:

determining if the filter item comprises a NOT connective; and

determining if the filter item comprises one of a type only filter item or a type and value filter item; and

if it is determined that the filter item comprises a NOT connective and a type only filter item, apply a logical methodology to evaluate the NOT connective, the logical methodology comprising expanding an expression of the filter item so that the filter item does not comprise the NOT connective.